CLAIMS

1. A monoclonal antibody that recognizes an antigen on human pluripotent lympho-hematopoietic stem cells, but does not recognize an antigen on normal, mature human myeloid and lymphoid cells.

2. A monoclonal antibody to normal, immature human marrow cells that is stage specific and not lineage dependent, said antibody

(a) recognizing an antigen on normal, human blood or bone marrow:

(i) colony-forming cells for granulocytes and monocytes (CFC-GM),

(ii) colony-forming cells for erythrocytes (BFU-E),

(iii) colony-forming cells for eosinophils (CFC-Eo),

(iv) multipotent colony-forming cells (CFC-GEMM), and

(v) immature lymphoid precursor cells;

(b) recognizing an antigen on a maximum of about 5% normal, human marrow cells and a maximum of about 1% normal, human peripheral blood cells; and

(c) not recognizing an antigen on normal, mature human myeloid and lymphoid cells.

3. The monoclonal antibody of claim 1 that recognizes an antigen also recognized by the antibody produced by the hybridoma deposited under ATCC Accession No. HB-8483.

4. The monoclonal antibody of claim 3 that corresponds to the monoclonal antibody produced by the hybridoma deposited under ATTC Accession No. HB-8483.

5. The monoclonal antibody of claim 3 that is the antibody produced by the hybridoma deposited under ATCC Accession No. HB-8483.

6. The immortal cell line that produces the monoclonal antibody of claim 1.

7. The immortal cell line that produces the monoclonal antibody of claim 2.

8. The immortal cell line that produces the monoclonal antibody of claim 3.

9. The immortal cell line that produces the monoclonal antibody of claim 4.

10. The hybridoma deposited under ATCC Accession No. HB-8483.

11. A method of producing a population of human cells containing pluripotent lympho-hematopoietic stem cells comprising:

(a) providing a cell suspension from human tissue, said tissue selected from the group consisting of marrow and blood;

(b) contacting said cell suspension with a monoclonal antibody to immature human marrow cells that is stage-specific and not lineage dependent, said antibody recognizes an antigen on human pluripotent lympho-hematopoietic stem cells and does not recognize an antigen on mature, human myeloid and lymphoid cells; and

(c) separating and recovering from said cell suspension the cells bound by said antibody.

12. The method of claim 11 wherein said antibody recognizes as an antigen a cell-surface protein on a human leukemic cell line selected from the group consisting of the KG-1 and KG-1a cell lines, said protein having an apparent molecular weight of approximately 115 kD.

13. The method of claim 11 wherein said antibody recognizes an antigen also recognized by the monoclonal antibody produced by the hybridoma deposited under ATCC Accession No. HB-8483.

14. The method of claim 11 wherein said antibody corresponds to the monoclonal antibody produced by the hybridoma deposited under ATCC Accession No. HB-8483.

15. The method of claim 11 wherein said antibody is produced by the hybridoma deposited under ATCC Accession No. HB-8483.

16. A method of producing a population of human cells containing pluripotent lympho-hematopoietic stem cells comprising:

(a) providing a cell suspension from human tissue, said tissue selected from the group consisting of marrow and blood;

(b) contacting said cell suspension with a solid-phase linked monoclonal antibody to immature human marrow cells that is stage-specific and not lineage-dependent, said antibody recognizes an antigen on human pluripotent lympho-hematopoietic stem cells, but does not recognize an antigen on mature human myeloid and lymphoid cells;

(c) separating unbound cells from said solid-phase linked monoclonal antibody;

(d) recovering bound cells from said solid-phase linked monoclonal antibody after separating said unbound cells.

17. The method of claim 16 wherein said cell suspension is human blood.

18. The method of claim 17 wherein step (b) comprises continuously withdrawing blood from the circulatory system of a donor, passing said blood through a column containing said solid-phase linked monoclonal antibody, and then returning said blood to the circulatory system of said donor.

19. The method of claim 16 wherein said antibody recognizes as an antigen a cell-surface protein on a human leukemic cell line selected from the group consisting of the KG-1 and KG-1a cell lines, said antigen having an apparent molecular weight of approximately 115 kD.

20. The method of claim 16 wherein said antibody recognizes an antigen also recognized by the monoclonal antibody produced by the hybridoma deposited under ATCC Accession No. HB-8483.

21. The method of claim 18 wherein said antibody recognizes an antigen also recognized by the monoclonal antibody produced by the hybridoma deposited under ATCC Accession No. HB-8483.

22. The method of claim 18 wherein said antibody is produced by the hybridoma deposited under ATCC Accession No. HB-8483.

23. A suspension of human cells comprising pluripotent lympho-hematopoietic stem cells substantially free of mature lymphoid and myeloid cells.

24. The cell suspension of claim 23 further comprising colony-forming cells for granulocytes/monocytes (CCF-GM), colony-forming cells for erythrocytes (BFU-E), colony-forming cells for eosinophils (CFC-Eo), multipotent colony-forming cells (CFC-GEMM), and immature lymphoid precursor cells.

23. The cell suspension of claim 23 substantially free of cells without a cell-surface antigen recognized by the monoclonal antibody produced by the hybridoma deposited under ATCC Accession No. HB-8483.

26. A suspension of human cells from marrow or blood comprising cells having a cell-surface antigen recognized by the antibody produced by the hybridoma deposited under ATCC Accession No. HB-8483 and substantially free of cells that do not have a cell-surface antigen recognized by said antibody, said suspension having the ability to restore the production of lymphoid and hematopoietic cells to a human lacking said production.

27. A method of transplanting stem cells comprising:
(a) providing the cell suspension of claim 23, and
(b) administering said cell suspension to a human patient in an effective amount.

28. A method of transplanting stem cells comprising:
(a) providing the cell suspension of claim 24, and
(b) administering said cell suspension to a human patient in an effective amount.

29. A method of transplanting stem cells comprising:
(a) providing the cell suspension of claim 25, and

(b) administering said cell suspension to a human patient in an effective amount.

30. A method of transplanting stem cells comprising:

(a) providing the cell suspension of claim 26, and

(b) administering said cell suspension to a human patient in an effective amount.